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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,724	07/25/2003	Ole Sibbesen	078883-0164	2368

22428 7590 03/16/2006

FOLEY AND LARDNER LLP
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WASHINGTON, DC 20007

EXAMINER	
RAO, MANJUNATH N	
ART UNIT	**PAPER NUMBER**
1652	

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,724	SIBBESEN, OLE	
	Examiner	Art Unit	
	Manjunath N. Rao, Ph.D.	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: Sequence alignment

DETAILED ACTION

Claim 44 is currently pending in this application. Claims 1-43 have been cancelled in this application.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copies of all three foreign priority documents have not been received. A certified copy of only UK 9828599.2, 12-23-1998 has been filed in parent Application No. 09/869155, filed on 10-1-01. Applicants are urged to file the remaining two foreign priority documents if they want to claim the benefit of the same.

Drawings

Drawings submitted in this application are accepted by the Examiner for examination purposes only.

Specification

Examiner notes that applicants have not updated the relationship of the instant application to its parent application that has matured in to a US patent. Examiner urges applicants to amend said information by providing the US patent number in response to this Office action.

The disclosure is objected to because of the following informalities: The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable

code (for example see page 7). Applicant is required to delete **all** such embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 44 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 44 is drawn to "A xylanase comprising..." which reads on the product of nature. Claims drawn to products of nature are considered non-statutory and therefore is rejected under 35 U.S.C. 101. Examiner suggests amending the claim to recite "An isolated or purified xylanase comprising..." to show the hand of man and to overcome this rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 44 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 44 recites the phrase "sequence presented as SEQ ID NO:5". It is not clear to the Examiner as to whether the claimed xylanase actually comprises the sequence SEQ ID

NO:5 or whether said SEQ ID NO:5 is a representative sequence or whether it is just emblematic sequence. Examiner suggests deletion of the phrase and referring the xylanase directly to the SEQ ID NO such as "comprising the amino acid sequence SEQ ID NO:5".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 44 is rejected under 35 U.S.C. 102(b) as being anticipated by either Wolf et al. (Microbiology. 1995 Feb;141 (Pt 2):281-90) or Paice MG et al. (Arch. Microbiol., 1986, Vol. 144, pages 201-206). This rejection is based upon the public availability of printed publication. Claim 44 of the instant application is drawn to a xylanase comprising the amino acid sequence SEQ ID NO:5. Wolf et al. or Paice et al. disclose a xylanase which has an amino acid sequence that is 100% identical to that of SEQ ID NO:5 (see enclosed sequence alignment). Therefore, Wolf et al. or Paice et al. anticipate claim 44 as written.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 44 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 10 of co-pending application 10/626583. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim, because the examined claim is either anticipated by, or would have been obvious over the reference claim. See, e.g., *In re Berg*, 140 F.3d 1428,46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi* 759 F.2d 887,225 USPQ 645 (Fed. Cir. 1985). Although the conflicting claims are not identical, they are not patentably distinct from each other. Claim 44 of the instant application and claims 10 of the reference patent are both directed to xylanase having an amino acid sequence SEQ ID NO:5. While the instant application claims the xylanase as such, the co-pending application claims a dough comprising said xylanase. Among all the different ways one can claim the xylanase, the way the xylanase is claimed in the instant application and in the reference application, are identical to one another. The portion of the specification (and the claims) in the reference application that supports the recited amino acid sequence SEQ ID NO:5 anticipates the xylanase claimed in claim 44 herein. Claim of the instant application listed above cannot be considered patentably distinct over claim 10 of the reference application when there is specifically recited embodiment that would anticipate mainly claim 44 of the instant application. Alternatively,

claims 44 cannot be considered patentably distinct over claims 10 of the reference application when there is specifically disclosed embodiment in the reference application that supports claim 10 of that application and falls within the scope of claim 44 herein because it would have been obvious to one having ordinary skill in the art to modify claims 10 of the reference by selecting a specifically disclosed embodiment that supports that claim. One of ordinary skill in the art would have been motivated to do this because that embodiment is disclosed as being a preferred embodiment within claim 10 of the reference application.

Conclusion

Claim 44 remains rejected.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Manjunath N. Rao, Ph.D. whose telephone number is 571-272-0939. The Examiner can normally be reached on 7.00 a.m. to 3.30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0928. The fax phone numbers for the organization where this application or proceeding is assigned is 571-273-8300 for regular communications and for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Manjunath N. Rao, Ph.D.
Primary Examiner
Art Unit 1652

March 1, 2006

GenCore version 5.1.7

OM protein - protein search, using sw model

Run on: February 3, 2006, 09:08:23 ; Search time 42 Seconds
(without alignments)
487.956 Million cell updates/sec

Title: US-10-626-724-5
Perfect score: 1171
Sequence: 1 MFKFKKNFLVGLSAALMSIS.....YQVMATEGYQSSGSSNVTVW 213

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_80:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1171	100.0	213	1	I40569	endo-1,4-beta-xyla
2	1168	99.7	213	1	S01734	endo-1,4-beta-xyla
3	1165	99.5	213	1	S48126	endo-1,4-beta-xyla
4	864.5	73.8	210	2	C83762	endo-1,4-beta-xyla
5	651.5	55.6	241	2	T37005	endo-1,4-beta-xyla
6	637	54.4	240	1	JS0591	endo-1,4-beta-xyla
7	621	53.0	240	1	S47512	endo-1,4-beta-xyla
8	609.5	52.0	644	1	I40712	endo-1,4-beta-xyla
9	600	51.2	225	1	S57477	endo-1,4-beta-xyla
10	594	50.7	333	1	JS0590	endo-1,4-beta-xyla
11	594	50.7	335	2	T50601	endo-1,4-beta-xyla
12	578	49.4	232	2	JC7577	endo-1,4-beta-xyla
13	577	49.3	221	1	S57469	endo-1,4-beta-xyla
14	552	47.1	227	2	S43919	endo-1,4-beta-xyla
15	540	46.1	219	2	S71472	endo-1,4-beta-xyla
16	530	45.3	197	1	A44597	endo-1,4-beta-xyla
17	525	44.8	221	2	JC7307	endo-1,4-beta-xyla
18	523	44.7	190	1	A44595	endo-1,4-beta-xyla
19	515.5	44.0	241	2	S71473	endo-1,4-beta-xyla
20	513	43.8	190	1	A44593	endo-1,4-beta-xyla
21	506	43.2	190	1	A44594	endo-1,4-beta-xyla
22	505	43.1	223	2	S39883	endo-1,4-beta-xyla
23	503	43.0	222	2	S39154	xylanase 1 - fungu
24	480.5	41.0	354	1	S51779	endo-1,4-beta-xyla
25	469	40.1	661	1	S59633	endo-1,4-beta-xyla
26	461.5	39.4	228	1	WWBSXP	endo-1,4-beta-xyla
27	436	37.2	656	1	S59631	endo-1,4-beta-xyla
28	420	35.9	261	1	S12745	endo-1,4-beta-xyla
29	409	34.9	511	1	JQ1935	endo-1,4-beta-xyla
30	405	34.6	229	2	S39155	xylanase 2 - fungu
31	388	33.1	954	1	S20907	endo-1,4-beta-xyla
32	382.5	32.7	211	1	JC1198	endo-1,4-beta-xyla
33	381	32.5	211	1	S48229	endo-1,4-beta-xyla
34	377	32.2	789	2	S58235	endo-1,4-beta-xyla
35	375	32.0	211	2	S49542	endo-1,4-beta-xyla
36	361	30.8	209	2	JC4909	endo-1,4-beta-xyla
37	349.5	29.8	781	2	S51592	XynB precursor - R
38	336.5	28.7	802	2	A36910	xylanase, beta(1,3
39	271.5	23.2	607	2	S24754	endo-1,4-beta-xyla
40	264.5	22.6	607	2	S49528	endoxylanase - rum
41	262	22.4	608	2	B53295	xylanase (EC 3.2.1
42	245	20.9	266	1	S48865	endo-1,4-beta-xyla
43	133	11.4	313	2	T04776	hypothetical prote
44	126	10.8	50	2	A61149	endo-1,4-beta-xyla
45	120	10.2	666	2	A42296	lysozyme 2 (EC 3.2

ALIGNMENTS

RESULT 1
I40569
endo-1,4-beta-xylanase (EC 3.2.1.8) A precursor - Bacillus subtilis
N;Alternate names: xylanase A
C;Species: Bacillus subtilis
C;Date: 12-Aug-1996 #sequence_revision 02-Jul-1998 #text_change 09-Jul-2004
C;Accession: I40569; S39157; S39158; A53635; F69735; S51711
R;Wolf, M.; Geczi, A.; Simon, O.; Borriss, R.
Microbiology 141, 281-290, 1995
A;Title: Genes encoding xylan and beta-glucan hydrolysing enzymes in Bacillus subtilis
A;Reference number: I40370; MUID:95219081; PMID:7704256
A;Accession: I40569
A;Status: nucleic acid sequence not shown; translation not shown; translated from GB/E
A;Molecule type: DNA
A;Residues: 1-22,'P',24-213 <WOL>
A;Cross-references: UNIPROT:P18429; UNIPARC:UPI00000B63D0; EMBL:Z34519; NID:g2995396;
A;Experimental source: strain 168
R;Paice, M.G.; Bourbonnais, R.; Desrochers, M.; Jurasek, L.; Yaguchi, M.
Arch. Microbiol. 144, 201-206, 1986
A;Title: A xylanase gene from Bacillus subtilis: nucleotide sequence and comparison wi
A;Reference number: S39157
A;Accession: S39157
A;Molecule type: DNA
A;Residues: 1-213 <PAI1>
A;Cross-references: UNIPARC:UPI00000336C9; EMBL:M36648; NID:g143842; PIDN:AAA22897.1;
A;Experimental source: strain PAP115
A;Accession: S39158
A;Molecule type: protein
A;Residues: 29-58;60-73;75-76 <PAI2>
A;Cross-references: UNIPARC:UPI0000015759E; UNIPARC:UPI0000172962; UNIPARC:UPI000017296
A;Experimental source: strain PAP115
R;Miao, S.; Ziser, L.; Aebersold, R.; Withers, S.G.
Biochemistry 33, 7027-7032, 1994
A;Title: Identification of glutamic acid 78 as the active site nucleophile in Bacillus
A;Reference number: A53635; MUID:94271752; PMID:7911679
A;Accession: A53635
A;Status: preliminary
A;Molecule type: protein
A;Residues: 97-107 <MIA>
A;Cross-references: UNIPARC:UPI0000172964
R;Kunst, F.; Ogasawara, N.; Moszer, I.; Albertini, A.M.; Alloni, G.; Azevedo, V.; Bert
C.; Bron, S.; Brouillet, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.; C
A.; Ehrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, E.
Nature 390, 249-256, 1997
A;Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Gall
iech, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Hosono, S.; Hullo, M.
Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardinoi
A;Authors: Lauber, J.; Lazarevic, V.; Lee, S.M.; Levine, A.; Liu, H.; Masuda, S.; Maue
y, M.; Ogawa, K.; Ogiwara, A.; Oudega, B.; Park, S.H.; Parro, V.; Pohl, T.M.; Portetel
Rieger, M.; Rivolta, C.; Rocha, E.; Roche, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanlo
A;Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Ser
akeuchi, M.; Tamakoshi, A.; Tanaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchiyam

.; Winters, P.; Wipat, A.; Yamamoto, H.; Yamane, K.; Yasumoto, K.; Yata, K.; Yoshida, K
;Authors: Yoshikawa, H.F.; Zumstein, E.; Yoshikawa, H.; Danchin, A.
;Title: The complete genome sequence of the Gram-positive bacterium Bacillus subtilis.
;Reference number: A69580; MUID:98044033; PMID:9384377
;Accession: F69735
;Status: nucleic acid sequence not shown; translation not shown
;Molecule type: DNA
;Residues: 1-213 <KUN>
;Cross-references: UNIPARC:UPI00000336C9; GB:Z99114; GB:AL009126; NID:g2634230; PIDN:CA
;Experimental source: strain 168
;Genetics:
;Gene: xynA
;Map position: 175 degrees
;Function:
;Description: catalyzes the hydrolysis of 1,4-beta-xylosidic bonds in xylans
;Pathway: xylan degradation
;Superfamily: endo-1,4-beta-xylanase; endo-1,4-beta-xylanase homology
;Keywords: extracellular protein; glycosidase; hydrolase; polysaccharide degradation
1-28/Domain: signal sequence #status predicted <SIG>
29-213/Product: endo-1,4-beta-xylanase A #status experimental <MAT>
31-213/Domain: endo-1,4-beta-xylanase homology <XYL>
106/Active site: Glu #status experimental
200/Active site: Glu #status predicted

Query Match 100.0%; Score 1171; DB 1; Length 213;
Best Local Similarity 100.0%; Pred. No. 2.4e-80;
Matches 213; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
          1 MFKFKKNFLVGLSAALMSISLFSATASAASTDYWQNWTDGGGIVNAVNGSGGNYSVNWSN 60
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
          1 MFKFKKNFLVGLSAALMSISLFSATASAASTDYWQNWTDGGGIVNAVNGSGGNYSVNWSN 60

         61 TGNFVVGKGWTTGSPFRTINYNAGVWAPNGNGYLTLYGWTRSPLIEYYVVDSWGTYRPTG 120
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
         61 TGNFVVGKGWTTGSPFRTINYNAGVWAPNGNGYLTLYGWTRSPLIEYYVVDSWGTYRPTG 120

        121 TYKGTVKSDGGTYDIYTTTRYNAPSIDGDRTTFTQYWSVRQSKRPTGSNATITFSNHVNA 180
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
        121 TYKGTVKSDGGTYDIYTTTRYNAPSIDGDRTTFTQYWSVRQSKRPTGSNATITFSNHVNA 180

        181 WKSHGMNLGSNWAYQVMATEGYQSSGSSNVTVW 213
            |||||||||||||||||||||||||||||||||
        181 WKSHGMNLGSNWAYQVMATEGYQSSGSSNVTVW 213
```

SULT 2
1734
do-1,4-beta-xylanase (EC 3.2.1.8) A precursor [validated] - Bacillus circulans
Alternate names: xylanase A
Species: Bacillus circulans
Date: 07-Jun-1990 #sequence_revision 22-Nov-1996 #text_change 09-Jul-2004
Accession: S01734
Yang, R.C.A.; MacKenzie, C.R.; Narang, S.A.
cleic Acids Res. 16, 7187, 1988
Title: Nucleotide sequence of a Bacillus circulans xylanase gene.
Reference number: S01734; MUID:88303346; PMID:3405767
Accession: S01734
Status: translation not shown
Molecule type: DNA
Residues: 1-213 <YAN>
Cross-references: UNIPROT:P09850; UNIPARC:UPI0000034D1C; EMBL:X07723; NID:g39462; PIDN
Note: part of this sequence, including the amino end of the mature protein, was confir
Wakarchuk, W.W.; Campbell, R.L.; Sung, W.L.; Davoodi, J.; Yaguchi, M.
otein Sci. 3, 467-475, 1994
Title: Mutational and crystallographic analyses of the active site residues of the Bac
Reference number: A53181; MUID:94290322; PMID:8019418
Contents: annotation; X-ray crystallography, 1.49 angstroms, residues 29-213
Campbell, R.L.
mitted to the Brookhaven Protein Data Bank, June 1994
Reference number: A52866; PDB:1XNB
Contents: annotation; X-ray crystallography, 1.49 angstroms, residues 29-213
Genetics:
Gene: xlnA
C;Function:
A;Description: catalyzes the hydrolysis of 1,4-beta-xylosidic bonds in xylans
A;Pathway: xylan degradation
C;Superfamily: endo-1,4-beta-xylanase; endo-1,4-beta-xylanase homology
C;Keywords: extracellular protein; glycosidase; hydrolase; polysaccharide degradation
F;1-28/Domain: signal sequence #status predicted <SIG>
F;29-213/Product: endo-1,4-beta-xylanase A #status experimental <MAT>
F;31-213/Domain: endo-1,4-beta-xylanase homology <XYL>
F;97,108,140/Binding site: substrate (Tyr, Tyr, Arg) #status experimental
F;106,200/Active site: Glu #status experimental

Query Match 99.7%; Score 1168; DB 1; Length 213;
Best Local Similarity 99.5%; Pred. No. 3.9e-80;
Matches 212; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 MFKFKKNFLVGLSAALMSISLFSATASAASTDYWQNWTDGGGIVNAVNGSGGNYSVNWSN 60
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Db          1 MFKFKKNFLVGLSAALMSISLFSATASAASTDYWQNWTDGGGIVNAVNGSGGNYSVNWSN 60

Qy         61 TGNFVVGKGWTTGSPFRTINYNAGVWAPNGNGYLTLYGWTRSPLIEYYVVDSWGTYRPTG 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 TGNFVVGKGWTTGSPFRTINYNAGVWAPNGNGYLTLYGWTRSPLIEYYVVDSWGTYRPTG 120

Qy        121 TYKGTVKSDGGTYDIYTTTRYNAPSIDGDRTTFTQYWSVRQSKRPTGSNATITFSNHVNA 180
              |||||||||||||||||||||||||||||||||||||||||||||||||||||:|||||
Db        121 TYKGTVKSDGGTYDIYTTTRYNAPSIDGDRTTFTQYWSVRQSKRPTGSNATITFTNHVNA 180

Qy        181 WKSHGMNLGSNWAYQVMATEGYQSSGSSNVTVW 213
              |||||||||||||||||||||||||||||||||
Db        181 WKSHGMNLGSNWAYQVMATEGYQSSGSSNVTVW 213
```

RESULT 3
S48126
endo-1,4-beta-xylanase (EC 3.2.1.8) S precursor - Bacillus sp. (strain YA-14)
N;Alternate names: xylanase S
C;Species: Bacillus sp.
A;Variety: strain YA-14
C;Date: 14-Jul-1995 #sequence_revision 22-Nov-1996 #text_change 09-Jul-2004
C;Accession: S48126
R;Ju-Hyun, Y.; Park, Y.S.; Yum, D.Y.; Kim, J.M.; Kong, I.S.; Bai, D.H.
J. Microbiol. Biotechnol. 3, 139-145, 1993
A;Title: Nucleotide sequence and analysis of a xylanase gene (xynS) from alkali-tolerant
A;Reference number: S48126
A;Accession: S48126
A;Molecule type: DNA
A;Residues: 1-213 <JUH>
A;Cross-references: UNIPROT:Q59256; UNIPARC:UPI0000060D47; EMBL:X59058; NID:g458800; PIDI
A;Experimental source: strain YA-14
C;Genetics:
A;Gene: xynS
C;Function:
A;Description: catalyzes the hydrolysis of 1,4-beta-xylosidic bonds in xylans
A;Pathway: xylan degradation
C;Superfamily: endo-1,4-beta-xylanase; endo-1,4-beta-xylanase homology
C;Keywords: extracellular protein; glycosidase; hydrolase; polysaccharide degradation
F;1-28/Domain: signal sequence #status predicted <SIG>
F;29-213/Product: endo-1,4-beta-xylanase S #status predicted <MAT>
F;31-213/Domain: endo-1,4-beta-xylanase homology <XYL>
F;106,200/Active site: Glu #status predicted

Query Match 99.5%; Score 1165; DB 1; Length 213;
Best Local Similarity 99.1%; Pred. No. 6.6e-80;
Matches 211; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 MFKFKKNFLVGLSAALMSISLFSATASAASTDYWQNWTDGGGIVNAVNGSGGNYSVNWSN 60
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Db          1 MFKFKKNFLVGLSAALMSISLFSATASAASTDYWQNWTDGGGIVNAVNGSGGNYSVNWSN 60

Qy         61 TGNFVVGKGWTTGSPFRTINYNAGVWAPNGNGYLTLYGWTRSPLIEYYVVDSWGTYRPTG 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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